

WHAT IS CLAIMED IS:

Sub 1. A joint structure of a robot, comprising:
 927 a first member and a second member connected to each other
 for relative rotation through a speed reducer; and
 5 a motor for driving the second member for rotation relative to
 the first member, wherein

the speed reducer includes a first-stage speed reducing
 mechanism and a second-stage speed reducing mechanism,

10 the first-stage speed reducing mechanism includes an input
 gear connected directly to the shaft of the motor and a single spur
 gear in mesh with the input gear,

15 the second-stage speed reducing mechanism includes a
 crankshaft connected directly to the spur gear, an external gear which
 engages the crankshaft to be rocked eccentrically, a casing of the speed
 reducer, an internal gear which is formed inside the casing and is in
 mesh with the external gear, and a rotating member which supports
 the crankshaft for rotation and can rotate around the central axis of
 the internal gear with respect to the casing,

20 the casing of the second-stage speed reducing mechanism is
 attached to the first member,

the second member is attached to the rotating member of the
 second-stage speed reducing mechanism, and

25 the motor is attached to the second member so that the input
 gear of the motor is in mesh with the spur gear of the first-stage speed
 reducing mechanism.

2. The joint structure of a robot according to claim 1, wherein
 said second member is provided with a mounting portion for mounting
 the motor in a given position and is attached to the rotating member

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a motor fixed to the second member so that the output shaft thereof extends in the direction parallel to the central axis of the speed reducer toward the gear speed reducing mechanism of the speed reducer,

wherein a robot joint is constituted between the first member and the second member in a manner such that the gear speed reducing mechanism of the speed reducer is actuated by the rotation

12 of the output shaft of the motor to make the second member rock with respect to the first member.

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